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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/550,319 | 04/14/2000 | Patrice Onno | 1807.1250 | 9092 |

5514 7590 09/08/2003

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| EXAMINER |
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DO, ANH HONG

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| ART UNIT | PAPER NUMBER |
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2624

DATE MAILED: 09/08/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/550,319

Applicant(s)

ONNO ET AL.

Examiner

ANH H DO

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-16 is/are rejected.
- 7) ☒ Claim(s) 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6/23/2003 have been fully considered but they are not persuasive.

With respect to independent claims 1 and 14, the applicants contend that the cited prior art does not teach or suggest third and fourth steps recited in these claims. However, Kajiwara clearly shows in Fig. 10: the step of producing second blocks 0 - (N-1) having the same size as the first blocks shown in Fig. 4B, each consisting of sub-frequency band blocks LL; the step of performing wavelet transformation (i.e., inverse discrete wavelet conversion) on the second blocks. And Bradley discloses a first primary memory for storing the resulting DWT coefficients implicitly including sub-frequency band blocks LL (page 3, lines 19-20).

Regarding the specification, the applicants are suggested to arrange it as in the guidelines below (especially, it should include "Background of the Invention" and "Brief Summary of the Invention").

For the foregoing reasons, it is believed the rejection should be sustained.

Specification

2. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to the drawings, each of the lettered items should appear in upper case, without underling or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-Reference to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Sequence Listing," a table, or a computer program listing appendix submitted on compact disc (see 37 CFR 1.52(e)(5)).
- (e) Background of the Invention.
 - 1. Field of the Invention.
 - 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing, if on paper (see 37 CFR 1.821-1.825).

Claim Rejections - 35 U.S.C. § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiwara et al. (U.S. Patent No. 6,337,929 B1) in view of Bradley (WO 97/18527).

Regarding claims 1 and 14, Kajiwara discloses:

- means for dividing the image into a plurality of first blocks each consisting of (W pixels by H pixels) (Fig. 2: image WxH is divided into a plurality of first blocks WbxHb pixels);
- means for performing wavelet transformation on each of the first blocks to produce sub-frequency band blocks LL, LH, HL, and HH (Fig. 4B);
- means for producing second blocks 0 - (N-1) having the same size as the first blocks shown in Fig. 4B, each consisting of sub-frequency band blocks LL (Fig. 10);
- means for performing wavelet transformation on the second blocks (Fig. 10: inverse discrete wavelet conversion).

One skilled in the art would have clearly recognized that Kajiwara divides an image into blocks and performs DWT on each block facilitate the image storage so as to improve encoding efficiency. Kajiwara does not specifically teach storing sub-frequency band blocks LL.

Bradley, in the same field of endeavor, teaches storing the resulting DWT coefficients implicitly including sub-frequency band blocks LL in a first primary memory (page 3, lines 19-20), wherein the method of Bradley using the memory for the seamless wavelet-based compression of very large contiguous images without artifacts so as to enhance the image encoding efficiency (page 2, lines 14-20).

Therefore, it would have been obvious to employ a memory in Kajiwara as taught by Bradley in order to store very large contiguous images in terms of DWT coefficients so as to enhance the image encoding efficiency.

Regarding claim 2, Kajiwara teaches the image divided into a plurality of first groups each consisting of (n first blocks horizontally lined in the image by n first blocks vertically lined therein), and the second to fourth steps are performed on each first group (Fig. 10: 4 first blocks horizontally lined in the image and 4 first blocks vertically lined therein; and the wavelet transformation step, the producing step and wavelet transformation step on the second blocks are performed as discussed in claim 1 and 14 above).

Regarding claim 3, Kajiwara teaches wherein: sub-frequency band blocks LL resulting from wavelet transformation of the second blocks are stored in unit of the first group in order to produce third blocks having the same size as the first blocks; the third

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blocks are used as the first blocks and subjected to wavelet transformation (Fig. 4B: sub-frequency band blocks LL2 resulting from wavelet transformation of the second blocks are stored in unit of the first group in order to produce third blocks LL3 having the same size as the first blocks; the third blocks are used as the first blocks and subjected to wavelet transformation); the image divided into a plurality of second groups each consisting of (n first blocks horizontally lined in the image by n first blocks vertically lined therein), and production of the third blocks and wavelet transformation thereof are performed in units of the second group (Fig. 10: 4 first blocks horizontally lined in the image and 4 first blocks vertically lined therein; and production of the third blocks and wavelet transformation thereof are performed in units of the second group).

Regarding claim 4, Kajiwara teaches wherein grouping to be performed according to a required resolution level meets the condition that each of groups to be produced at an I resolution level should consist of (n groups produced at an (I-1) resolution level to be horizontally lined in the image by n groups produced thereat to be vertically lined therein) (Fig. 4A: each group associated with each of the three resolution levels, and each group produced at an 2 resolution level, for instance, consists of (n groups produced at a 1 resolution level to be horizontally lined in the image by n groups produced thereat to be vertically lined therein)).

Regarding claim 5, Kajiwara teaches wherein at the I resolution level, sub-frequency band blocks LL produced at the (I-1) resolution level are grouped in order to produce blocks having the same size as the first blocks, and the blocks are subjected to wavelet transformation (Fig. 4A).

Regarding claim 7, although Kajiwara does not specifically teach $n=2$, such limitation is merely a matter of design choice and would have been obvious in the system of Kajiwara. Kajiwara teaches $n=4$ (Fig. 10) to show the number of blocks in the image after it is divided. The limitation in claim 7 does not define a patentably distinct invention over that in Kajiwara since both the invention as a whole and Kajiwara are directed to divide the image into a number of blocks. The number in which the image is divided is inconsequential for the invention as a whole and presents no new or unexpected results, so long as the image is divided into a plurality of blocks. Therefore, to have the number of blocks be 2 in Kajiwara would have been a matter of obvious design choice to one of ordinary skill in the art.

Regarding claims 8-10, Kajiwara teaches a storage device and product storing computer-usable instructions, and a signal conveying computer-usable instructions, for causing a programmable processing apparatus to become operable to perform a method according to claim 1 (col. 24, lines 38-62).

Regarding claims 11-13, Kajiwara teaches the image input is not only a photograph, a picture, but also characters, diagrams (col. 3, lines 31-36). One skilled in the art would have clearly recognized that the photograph or a picture can be acquired by a digital camera, the characters can be obtained by a copier machine and a scanner. Although neither Kajiwara nor Bradley specifically teaches a scanner, a copier machine and a digital camera, these input devices are well-known in the art and Examiner takes Official Notice. The scanner, the copier machine and the digital camera are widely used in the image processing system, such as taught in Kajiwara, for inputting the image data.

Therefore, it would have been obvious to one of ordinary skill in the art to have specifically used the scanner, the copier machine and the digital camera in Kajiwara to input the image data and thereby improving the image processing.

Regarding claim 15, Kajiwara teaches a coding method performed by entropy encoding unit 5 (Fig. 1).

Regarding claim 16, Kajiwara teaches a coding apparatus including entropy encoding unit 5 (Fig. 1).

Allowable Subject Matter

5. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 6, the prior art, taken either singly or in combination, does not teach:

- wherein the size of the first blocks meets $[2W+OP]^2$ where OP denotes the number of columns or rows shared by overlapping adjacent blocks.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANH H DO whose telephone number is 308-6720. The examiner can normally be reached on 5/4-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID K MOORE can be reached on 308-7452. The fax phone numbers for the organization where this application or proceeding is assigned are 308-5397 for regular communications and 308-5397 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

September 5, 2003



ANH HONG DO
PATENT EXAMINER